APS

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0CFR50.73

Palo Verde Nuclear Generating Station

Cliff Eubanks
Vice President
Nuclear Operations

Tel (623) 393-6116
Fax (623) 393-6077

Mail Station 7602
PO Box 52034
Phoenix, Arizona 85072-2034

102-05467-CE/SAB/DJS
April 21, 2006

ATTN: Document Control Desk
U. S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Dear Sirs:

Subject: Palo Verde Nuclear Generating Station (PVNGS)
Unit 1
Docket No. STN 50-528
License No. NPF-41
Licensee Event Report 2003-002-01

Attached please find a supplemental Licensee Event Report (LER) 50-528/2003-002-01 that has been prepared and submitted pursuant to 10 CFR 50.73 (a) (2) (iv) (A). This LER reports a condition in which Unit 1 licensed control room personnel initiated a manual reactor trip in response to a degraded main condenser tube plug.

In accordance with 10 CFR 50.4, a copy of this LER is being forwarded to the NRC Regional Office, NRC Region IV and the Resident Inspector. If you have questions regarding this submittal, please contact James A. Proctor, Regulatory Affairs, at (623) 393-5730.

Arizona Public Service Company makes no commitments in this letter.

Sincerely,

CE/SAB/DJS/gt

Attachment

cc: B. S. Mallett NRC Region IV Regional Administrator
M. B. Fields NRC NRR Project Manager
G. G. Warnick NRC Senior Resident Inspector for PVNGS

NRC FORM 366 (1-2001) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB NO. 3150-0104 EXPIRES 6-30-2001

Estimated burden per response to comply with this mandatory information collection request: 50 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the Records Management Branch (T-6 E6), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to bjs1@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202 (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

LICENSEE EVENT REPORT (LER)

(See reverse for required number of digits/characters for each block)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Palo Verde Nuclear Generating Station Unit 1	05000528	1 OF 4

TITLE (4)

Manual Reactor Trip Due to Degraded Main Condenser Tube Plug

EVENT DATE (5)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
										05000
03	27	2003	2003	– 002	– 01	04	??	2006	FACILITY NAME	DOCKET NUMBER
										05000

OPERATING MODE (9)	1	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check all that apply) (11)					
		20.2201(b)	20.2203(a)(3)(ii)		50.73(a)(2)(ii)(B)		50.73(a)(2)(ix)(A)
POWER LEVEL (10)	098	20.2201(d)	20.2203(a)(4)		50.73(a)(2)(iii)		50.73(a)(2)(x)
		20.2203(a)(1)	50.36(c)(1)(i)(A)	X	50.73(a)(2)(iv)(A)		73.71(a)(4)
		20.2203(a)(2)(i)	50.36(c)(1)(ii)(A)		50.73(a)(2)(v)(A)		73.71(a)(5)
		20.2203(a)(2)(ii)	50.36(c)(2)		50.73(a)(2)(v)(B)		OTHER Specify in Abstract below or in NRC Form 366A
		20.2203(a)(2)(iii)	50.46(a)(3)(ii)		50.73(a)(2)(v)(C)		
		20.2203(a)(2)(iv)	50.73(a)(2)(i)(A)		50.73(a)(2)(v)(D)		
		20.2203(a)(2)(v)	50.73(a)(2)(i)(B)		50.73(a)(2)(vii)		
		20.2203(a)(2)(vi)	50.73(a)(2)(i)(C)		50.73(a)(2)(viii)(A)		
		20.2203(a)(3)(i)	50.73(a)(2)(ii)(A)		50.73(a)(2)(viii)(B)		

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER (Include Area Code)
James A. Proctor, Section Leader, Regulatory Affairs	623-393-5730

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX		CAUSE	SYSTEM	COMPONENT	MANU FACTURER	REPORTABLE TO EPIX
B	CD	COND	H015	Y						

SUPPLEMENTAL REPORT EXPECTED (14)			EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
	YES (If yes, complete EXPECTED SUBMISSION DATE)	X NO				

ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)

On March 27, 2003 with Unit 1 operating in Mode 1, Power Operation, at approximately 97 per cent power, a HOTWELL A HIGH SODIUM alarm was received in the chemistry laboratory at approximately 09:27 MST. Chemistry personnel responded to the alarm and determined that hotwell 1A sodium was trending up. The condensate system was operating in the demineralizer by-pass mode at the time of the event. Control room personnel were notified and the abnormal operating (AO) procedure, Condenser Tube Rupture, 40AO-9ZZ10, was entered. Steam generator sodium levels continued to increase and at approximately 09:43 MST, in accordance with the procedure, the Control Room Supervisor (CRS) directed a manual reactor trip be initiated.

All control rods fully inserted and the plant was stabilized in Mode 3, Hot Standby. No other safety systems actuated and none were required. Problems were encountered with maintaining letdown flow but the control room operators were able to control pressurizer level within acceptable limits. The plant was cooled down to Mode 5, Cold Shutdown, to cleanup SG chemistry and to repair the cause of the intrusion to the hotwell.

The cause of the event was determined to be the failure of a previously installed main condenser tube plug. The cause of the plug failure has been determined to be a manufacturing defect that may have been aggravated during the installation of the plug. The failed tube plug was replaced.

No other similar events have been reported by Palo Verde in the past three years.

FACILITY NAME (1)	DOCKET (2)	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
Palo Verde Nuclear Generating Station Unit 1	05000528	2003	-- 002	-- 01	2 OF 4

NARRATIVE *(If more space is required, use additional copies of NRC Form 366A)* (17)

1. REPORTING REQUIREMENT(S):

Arizona Public Service Company (APS) is reporting this condition pursuant to 10 CFR 50.73 (a) (2) (iv) (A) due to the manual actuation of the reactor protective system (RPS) (EIIC Code: JC). Pursuant to 10 CFR 50.72 (b) (2) (iv) (B), a notification was made to the headquarters operation officer on March 27, 2003 (reference ENS # 39705).

2. DESCRIPTION OF STRUCTURE(S), SYSTEM(S) AND COMPONENT(S):

The main condenser tube plug that was found to be degraded is a PLUG, PUSH & SEAL CONDENSER, SIZE 1-1/8IN, 18-22 GAUGE, BUNA N RUBBER manufactured by JNT Technical Services Inc.

3. INITIAL PLANT CONDITIONS and EVENT DESCRIPTION:

On March 27, 2003 with Unit 1 operating in Mode 1, Power Operation, at approximately 97 per cent power, the main condenser (EIIC Code: COND) HOTWELL A HIGH SODIUM alarm (EIIS Code: AA) was received in the chemistry lab at approximately 09:27 MST. Chemistry personnel responded to the alarm and determined that hotwell 1A sodium in-line monitoring indication (EIIC Code: MON) was trending up and that condensate demineralizer (EIIS Code: DEM) influent (CDI) sodium indication was also trending up. The control room was notified and a chemistry technician proceeded to obtain a grab sample from the 1A hotwell. At the time of the event the unit was operating in the condensate demineralizer by-pass mode.

By 09:35 MST sodium levels in both steam generators (SGs) (EIIC Code: SG) were noted by a second chemistry technician to be 5000 ppb. Control room personnel were notified of this condition and the Condenser Tube Rupture abnormal operating (AO) procedure, 40AO-9ZZ10, was entered. SG sodium levels continued to increase and at approximately 09:43 MST, in accordance with appendix I of the AO procedure, the Control Room Supervisor (CRS) directed a manual reactor trip be initiated.

Standard post trip actions were taken and the Shift Manager classified the event as an uncomplicated reactor trip. Due to the amount of contaminant ingress to the SGs, the

plant was cooled down and entered Mode 5 at 01:28 MST on March 28 to facilitate cleanup of the SGs.

There were no inoperable systems at the start of the event that contributed to the event. Shortly after the manual reactor trip a problem was noted by the control room operators with letdown flow (EIIS Code: CB). A pressure relief valve (1JCHNPSV0345) (EIIS Code: RV) lifted twice and reset in response to a pressure surge in the letdown line as a result of the reactor trip transient and the pressurizer level control system response to the transient.

4. ASSESSMENT OF SAFETY CONSEQUENCES:

The manual reactor trip did not result in a transient more severe than those already analyzed in the updated Final Safety Evaluation Report Chapters 6 and 15. The primary system and secondary pressure boundary limits were not approached and no violations of the specified acceptable fuel design limits (SAFDL) occurred.

The condition would not have prevented the fulfillment of any safety function and did not result in a safety system functional failure as defined by 10CFR50.73(a)(2)(v).

The event did not result in any challenges to the fission product barriers or result in the release of radioactive materials. Therefore, there were no adverse safety consequences or implications as a result of this event and the event did not adversely affect the safe operation of the plant or health and safety of the public.

5. CAUSE OF THE EVENT:

The cause of the event was determined to be the failure of a previously installed main condenser tube plug. The cause of the plug failure has been determined to be a manufacturing defect that may have been aggravated during the installation of the plug. The plug exhibited a tear in the tip of the plug that allowed circulating water used to cool the condenser to enter the condenser hotwell and then enter the SGs.

Laboratory examination revealed that the plug had developed a "de-bonding" flaw that initiated within the body of the part and then extended by fracture to both the interior and exterior surfaces of the plug. Since the plug is injection molded, it is highly

probable that the initial defect occurred at the time of manufacture (i.e. gas inclusion, blister, micro-fracture, contamination impurity, etc.). After six months of service, the pressure differential that the plug experienced combined with the plug "relaxing" from being distended during installation caused the defect to extend until the plug was breached.

6. CORRECTIVE ACTIONS:

The degraded plug was replaced. SG chemistry was cleaned up, with the plant in Mode 5, by draining and refilling the SGs.

Condenser tube plug types were evaluated to determine the best one to be used at PVNGS. Various plants were contacted to obtain information on the type of the tube plug used and any problems connected with them. After evaluation, the Push'N Seal plug with plastic insert was selected for use at PVNGS. The condenser tube plugs in Units 1, 2 and 3 have been replaced with Push'N Seal plugs with plastic inserts.

7. PREVIOUS SIMILAR EVENTS:

There has been no similar event reported to the NRC by the Palo Verde Nuclear Station in the past three years.